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PROBLEMS.

241. BY P. RICHARDSON.—From any point within a parallelogram to draw three straight lines which shall divide the parallelogram into three equal parts.

242. BY G. J. HENDRICKS, EDGERTON, OHIO. — The difference between the areas of the inscribed and circumscribed circles of an equilateral triangle is a . Required the side of the triangle.

243. BY PROF. KERSHNER. — Adapt $\sqrt{a^2 + b^2}$, and $\sqrt{a + b} + \sqrt{a - b}$, to computation by the usual logarithmic tables.

244. BY MARCUS BAKER.—Prove that

$$1^9 + 2^9 + 3^9 + 4^9 + \dots + n^9 = \frac{1}{10} [16s^5 - 20s^4 + 12s^3 - 3s^2],$$
 where $s = 1 + 2 + 3 + 4 + \dots + n$.

245. BY PROF. SCHEFFER.—The three transversals AA' , BB' , CC' of a triangle ABC intersect each other in *one* point, cutting the sides of the triangle at A' , B' , C' . If the angles BAA' , ACC' and GBB' are equal, compute the transversals AA' , BB' , CC' by means of the sides a , b , c , of the triangle.

246. BY ARTEMAS MARTIN, M. A.—Show that the sum of five consecutive integral square numbers cannot be a square.

247. E. B. SEITZ. — Three points are taken at random on the surface of a circle; find the chance that the triangle formed by joining them is acute.

248. BY PROF. HALL.—If in the plane of xy the directions of the forces P and P' make with the axis of x the angles a and a' , and the direction of their resultant the angle A , and if we denote by p , p' and r the perpendiculars from the origin on these directions, we have the relation,

$$r \sin(a' - a) + p \sin(A - a') + p' \sin(a - A) = 0.$$

249. BY REQUEST. — Representing the amount of an insolvent estate by d , A has a claim of a , B a claim of b and C a claim of c against it. A's claim has a legal priority over B's, B's a priority over C's and C's a priority over A's. How should the estate be divided? Consider the several cases when the estate is insufficient to pay any two of the claims, when it is sufficient to pay any two, etc.